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Tuberculosis Control.—There are three kinds of approaches to tuberculosis control, advocated by different groups: (*1*) the single technique of examining contacts of known cases, believed to discover all the new cases in the community; (*2*) an annual tuberculin test of every person as the sole means of discovering all cases of tuberculosis; (*3*) a total assault by (*a*) community-wide X-ray surveys done within a deliberately limited period of time, (*b*) adequate follow-up facilities and examination of contacts of previously known and newly discovered cases, and (*c*) tuberculin testing of samples of a population at stated intervals. However, careful studies have shown that examination of contacts discovers only about 25 per cent of new cases reported each year. In such a program the important principle of examining the adult population in a limited time cannot be effective, and intense and continuous exposure of the public to hidden cases will occur. Annual tuberculin testing of the entire population with X-ray examination of reactors is impracticable. In large cities the major part of the adults are reactors; so, little is gained by tuberculin testing before X-ray examination. This test is most efficient in establishing the diagnosis of tuberculosis after X-ray examination. It is, furthermore, useful in determining changes in the infection rate from year to year, when applied to sample groups of the community, and it might be desirable, after isolation of spreaders of the disease and supervision of contacts, to test those whole communities where the infection rate is low. The Tuberculosis Control Division of the United States Public Health Service, by means of some demonstration units for assisting selected cities, can show that even the larger population groups in the country can be surveyed in less than three years With the help of tuberculosis associations and local medical societies every community can develop time-plans for tuberculosis control. The large and small communities of the entire United States could be covered by mass radiography teams in less than five years' time.—*The Time Element in Tuberculosis Control, H. E. Hilleboe, Pub. Health Rep., June 6, 1947, 62: 825.*—(*O. Pinner*)

Family Protection in Uruguay.—A law adopted in Uruguay in January, 1946 provides that any worker suffering from tuberculosis must give up his work until cured, the Government undertaking to support his family in the meanwhile. The expenses involved are borne by a National Tuberculosis Fund which so far has proved ample for the purpose. This includes the proceeds from a national collection and a tax on popular amusements. Family pensions are granted for a six-month period and are renewable. The amount depends on various factors, and especially the health and economic situation of the family, varying up to now between 10 and 100 pesos a month. These pensions are allotted under the following conditions: medical care and hospitalization of the patients in one of the Government tuberculosis hospitals; medical examination and supervision of the family; and study of the financial condition of the household.—*Aspectos de la gestion de la Comisión Honoraria para la Lucha Antituberculosa, A. Fernández, Hoja tisiol., March, 1947, 7: 29.*—(*A. A. Moll*)

Adult Tuberculosis in Childhood.—Latent lesions in childhood may represent primary foci, localized consolidations or small nodules resulting from the secondary hematogenous dissemination of Ranke. Tertiary lesions are also held to be usually of endogenous origin,

due to reactivation of a latent primary lesion in the lower parts of the lung, or more often from secondary lesions in the upper parts of the lungs, although exogenous reinfections may exist. Air-borne exogenous reinfections should localize in the lower parts of the lungs since the endobronchial aerial mechanics are the same in allergic and nonallergic subjects. Five instances of bilateral apical lesions in adolescents with healthy parents are cited as evidences of endogenous dissemination.—*Pathogénie de la tuberculose tertiaire de l'enfant et de l'adolescent, A. Vaquette & G. Boutin, Presse méd., February 15, 1947, 55: 111.*—(*E. Bogen*)

Tuberculosis in Diabetes.—During the nineteenth century, with the incidence and mortality of pulmonary tuberculosis much higher than at present, about 50 per cent of those diabetics who survived died of pulmonary tuberculosis. Even with the introduction of insulin, the incidence of tuberculosis in diabetics has remained high. Seventeen cases of diabetes mellitus and tuberculosis encountered during the supervision of 717 patients suffering from diabetes during the period of 1932–1946 are reviewed. There were 60 deaths, 11 from pulmonary tuberculosis. In 11 of the 17 cases, diabetes preceded the onset of tuberculosis by periods up to thirteen years, while in the other 6 cases the diagnosis was made simultaneously. In the greater percentage of cases, tuberculosis made its appearance in the fifth decade, whereas the majority of cases of tuberculosis in the general population occur in the second or third decade. This suggests that tuberculosis developed on account of preëxisting diabetes mellitus. Tuberculosis is more prone to be a complication in the uncontrolled diabetic. The most frequently accepted hypothesis is that hyperglycemia favors the growth of the tubercle bacillus in the body. Hyperglycemia may impair the normal reparative tissue processes and the resistance to infection. However, an upset in fat metabolism with an increased availability of glycerin may be a factor. Diabetic coma, with an oversupply of nitrogenous compounds, which favor the growth of the tubercle bacillus, may cause a pulmonary focus to flare up. Acidosis may be a factor in increasing the virulence of the tubercle bacillus. Vitamin-A deficiency, combined with fat metabolism in the diabetic, may be another factor playing a part in the unfavorable association of diabetes and tuberculosis. It is felt by some that the controlled diabetic has about the same chance of survival as the nondiabetic with comparable therapy for pulmonary tuberculosis. In the present series of 17 cases, 11 are dead, 7 within the first year, 3 within the second year and one within three years. In 2 cases the cause of death was coronary thrombosis, and in these cases the chest condition was stationary. Another death was due to pulmonary embolism in a patient whose chest condition was unsatisfactory. Of those still alive, 3 are in the critical phase of the first two years, which are well recognized as carrying the highest morbidity. It is urged that early diagnosis and adequate treatment for both tuberculosis and diabetes be recognized as the best solution to this difficult problem.—*Tuberculosis as a Complication of Diabetes Mellitus, W. R. Gauld & A. Lyall, Brit. M. J., May 17, 1947 4506: 677.*—(*R. W. Clarke*)

Rehabilitation.—There is still no widespread acceptance of rehabilitation, although rehabilitation and after-care of all tuberculous persons, beginning at the moment of diagnosis and continuing after as long as five years after release from the sanatorium, is one of the essentials in a sound program of tuberculosis control, important for the maintenance of the newly acquired health of the patient, as well as for the protection of the community from prolonged material liabilities. There is urgent need to acquaint the medical profession, not excluding some sanatorium physicians, with the rôle they should play in this task. The clinician alone has opportunities for observing the physical, intellectual and personal patterns of the patient. After the arrest of the disease, the vocational counselor and the medical social worker have to decide how to provide training, guidance and appropriate employment. Course units in the whole field of rehabilitation

should be established in every medical school and practical courses should be included in graduate schools. They should be supplemented by: (*1*) research in the psychology of the tuberculous; (*2*) study of the capacity of the tuberculous for types and quantity of work; (*3*) analysis and evaluation of present knowledge of the psychic patterns of human beings in general. Find, treat, rehabilitate the tuberculous: this trinity of approach means unity and total attack.—*Rehabilitating the Tuberculous, H. E. Hilleboe, Pub. Health Rep., July 6, 1947, 62: 969.*—(*O. Pinner*)

Demonstration of Tubercle Bacilli.—This is an abstract of a paper by J. Holm and Vera Lester, published in Acta tuberculosea Scandinavica, 1941, *16*, 3. From June 1, 1938 to February 28, 1941, 20,090 specimens of various kinds were tested simultaneously by culture and guinea pig inoculation; 3,731 specimens were positive; 3,273 were of the human and 458 of the bovine type. While culture failed in 323 instances (8.6 per cent) the guinea pig test failed in 829 (22.2 per cent). Culture is considerably more sensitive on the whole than guinea pig inoculation. However, the latter test is superior for the demonstration of the bovine tubercle bacillus: inoculation failed in 56 (12.2 per cent) of the 458 bovine positive specimens, culture failed in 76 (16.6 per cent). Culture failures occurred in 7 per cent of the guinea pig positive gastric lavages, 4 per cent of sputa, 10 per cent of the pleural exudates, 6 per cent of spinal fluids, 15 per cent of urines, 7 per cent of pus, tissue, etc. The success of inoculation depends largely upon whether the inoculum is homogenized. Specimens used for inoculation were tested in the native state unless judged to contain numerous microbes pathogenic for animals. Nearly all specimens were homogenized for culture, although this procedure damages the organisms. The greater the bacillary content of the culture, estimated from the colony count, the greater was the probability of a positive guinea pig test. Each specimen was equally divided for inoculation and culture; it might be assumed that absence of tubercle bacilli from the portions used for inoculations was responsible for the increasing failures as the bacillary content decreases. This is hardly acceptable when the amount of increase is considered. A certain minimal amount of bacilli capable of propagation is required for the production of tuberculosis in guinea pigs. This number probably depends on several conditions. The initial virulence, the degree of attenuation by homogenization, and the variable resistance of the guinea pigs are important. A total of 136 guinea pigs died from causes other than tuberculosis, mostly infection with type 19 pneumococci and more frequently in winter and spring when their resistance was lowered by a less sufficient diet. This dietary change did not alter the resistance of the guinea pigs to infection with tubercle bacilli. It is concluded that the guinea pig test could safely be omitted for a large proportion of specimens; it is used now only for a few kinds of specimens. Differentiation of cultures of tubercle bacilli and saprophytes is difficult, and even the expert must sometimes resort to testing doubtful colonies on guinea pigs, preferably by intracutaneous inoculation. Culture is more economical than inoculation; typing is made possible through direct observation of the colonies and a positive diagnosis can be obtained in three or four weeks, against six weeks with the guinea pig test. The method employed for culture is described in detail.—*Diagnostic Demonstration of Tubercle Bacilli (An Abstract, see beginning), Pub. Health Rep., July 6, 1947, 62: 47.*—(*O. Pinner*)

Normal Sedimentation Rates in Active Tuberculosis.—Normal sedimentation rates were found in 20.8, 34.6 or 36.9 per cent of active cases, depending on the criteria used to determine activity of the disease, in 1,066 cases of active pulmonary tuberculosis admitted to the Sampson Naval Hospital. The test, however, continues to be of value in this disease if used with careful regard for its limitation.—*Normal Sedimentation Rates in Active Pulmonary Tuberculosis: A study of 1,066 Cases in a Naval Tuberculosis Center, T. H. Noehren, J. Lab. & Clin. Med., May, 1947, 32: 526.*—(*F. G. Petrik*)

Pulmonary Calcification in Montevideo.—Postmortem examinations were made in 100 persons, 4 days to 90 years old, who died in accidents in Montevideo. Gross and microscopic studies supplemented by X-ray examination showed in 19 per cent "slate-like" pneumonic processes and in 25 per cent pleural adhesions. In most cases, these were apparently not tuberculous. In 2 children, 20 months and 3 years old, and in 2 adults active progressive tuberculosis was found. In 10 per cent of the group, mostly in persons over 40, caseous reinfection lesions were present. Calcifications of an obvious tuberculous nature in the lung or lymph nodes existed in 94 per cent of the whole series and in 100 per cent of patients over 21. Where various calcareous deposits occurred, histological study revealed that the infections had taken place at intervals of years and were exogenous. In some cases, calcified masses without nodal involvement had preceded the development of manifestations in the nodes and lungs. The presence or absence of enlarged nodes is therefore not sufficient to establish whether a process is primary or secondary. These small recurring lesions may explain the development and maintenance of allergy. (In Montevideo surveys so far made show that among persons about 20 years old, 85 per cent and, at 35, 98 to 100 per cent are tuberculin-positive.) —*Frecuencia de las calcificaciones ganglio-pulmonares entre los habitantes de Montevideo, F. D. Gómez & J. J. Scandraglio, Hoja tisiol., March, 1947, 7: 1.*—(*A. A. Moll*)

Tuberculous Hilar Node Enlargement in Adult.—Two cases of tracheobronchial lymph node tuberculosis are reported, one in a patient with primary infection and the other in a patient already allergic to tuberculin. The first case rapidly developed a typical early infiltration in the lung parenchyma, below the interlobar fissure, but under rest treatment improved rapidly, while at the same time the tracheobronchial nodes diminished in size. Such cases are rare in adult life, even in patients with primary infection, as the lymphatic tissue of the adult is said to have much less capacity for reaction than that of the child. The author is inclined to classify the case as one of rapid progression from the initial lesion to the third stage of Ranke, the full-blown phthisis of adolescence, with only transitory second-stage manifestations. Ordinarily the cases of primary infection with rapid node involvement have been serious ones with fatal termination. Such cases occur in individuals with little native resistance to tuberculosis, and in persons such as many in Western Europe to-day who have lost all resistance to the disease. The second case was that of an already infected patient with a positive tuberculin reaction who developed the usual signs of symptoms of pulmonary tuberculosis of the adult type and whose X-ray film showed in addition a rounded, homogeneous, sharply defined shadow adjacent to the trachea on the right side, interpreted as representing enlargement of a single chain of mediastinal nodes. He was given rest treatment and eventually the nodal sbadow entirely disappeared. These cases the authors consider exceptions to the dictum of Rist and Ameiulle (Bull. et Mêm. Soc. Méd. Hôp., Paris, April, 1914, p 651) that tuberculosis in the adult is not usually accompanied by tracheobronchial lymph node involvement. However, such cases are unusual even in patients who develop a primary infection in adult life.—*A propos de l'adénopathie trachéobronchique tuberculeus chez l'adulte, P. Mannes & R. Priest, Le Poumon, January-February, 1947, 3: 55.*—(*A. T. Laird*)

Tuberculous Pericarditis.—Pericardial effusion caused by tuberculosis has always been considered a rare condition with a high mortality. It is difficult to distinguish an effusion caused by tuberculosis from one caused by rheumatic fever. Diagnosis at times has to be presumed to be tuberculous only by the presence of other tuberculous manifestations, or by the absence of signs indicative of rheumatic origin. Characteristics of tuberculous pericardial effusion are: (*1*) no enlargement of the heart, (*2*) no gross murmurs or murmurs indicative of valvular enlargement, (*3*) no rheumatic manifestation, (*4*) no past or family

history of rheumatism. In addition, there is no marked anemia, an insidious onset, no leucocytosis, and, although the effusion may be large, the symptoms, especially precordial pain, are not marked. To have the pericardium as the sole site of tuberculous infection is rare. Pericardial effusion as the first clinical manifestation of active tuberculosis is not so uncommon. It seems generally agreed that the pericardial sac is relatively immune in a general miliary spread, and it appears that, if miliary spread is present, it is probably subsequent to a pericardial lesion. Tuberculous pericarditis is often shown to have followed involvement of the mediastinal lymph nodes and is spread through the lymphatics. Once the pericardium becomes infected, there follows an effusion with cardiac embarrassment lasting for several months, succeeded by phases of decreasing effusion with temporary recovery and finally increasing thickening and fibrosis of the pericardium, leading to congestive failure and death However, there may be recovery from a transient effusion, with absorption of the fluid, giving rise to no residual signs or symptoms of pericardial involvement. Four cases of pericardial effusion are described, one in an infant of 18 months. It is suggested that tuberculous pericardial effusion may be a more common condition than has been previously recognized, that it may be insidious in its onset, transient in its course and complete in resolution.—*Tuberculous Pericarditis, H. Kopelman, Brit. M. J., April 26, 1947, 4503: 559.*—(*R. W. Clarke*)

Atypical Abdominal Tuberculosis.—Typical abdominal tuberculosis includes cases of (*1*) abdominal primary complex, (*2*) tuberculosis of the peritoneum in the course of hematogenous tuberculosis and (*3*) intestinal tuberculosis. This paper deals with cases illustrating four atypical forms. (*1*) Fulminant tuberculous septicemia with spread of miliary or larger foci of tissue necrosis chiefly or exclusively in the abdominal organs: The illness was of four weeks' duration. There was extensive involvement of the spleen, liver and mesenteric nodes. The chest organs were free of involvement. There was a severe leucopenia resulting from bone marrow involvement. The portal of entry was probably the intestine. (*2*) Unusual distribution and changes involving abdominal organs, such as large tuberculomata restricted to the spleen, liver, nodes or biliary tract: The patient had a febrile illness four months prior to death from tuberculous meningitis. Necropsy revealed primary abdominal tuberculosis. There was extensive caseation of the abdominal nodes. No such changes were found in the chest. There was a caseous cholangitis with intratubular extension to the liver. The portal of entry was thought to be the duodenum. (*3*) Tuberculosis of the abdominal lymphatic system secondary to old primary infection of the lung: There was a fresh exacerbation in the glandular component of the thoracic complex. The infection extended by way of the posterior mediastinal nodes to the periaortic and periportal nodes. The peritoneal serosa and omentum were grossly involved by lymphatic spread. (*4*) Hematogenous spread in the liver and spleen or both with cavitation: In this case there was cavitation in a splenic nodule.—*Fulminant Tuberculous Septicaemia and Other Atypical Forms of Abdominal Tuberculosis, E. J. Blair & W. Pagel, Tubercle, June, 1947, 28: 115.*—(*A. G. Cohen*)

"Reticulotropic" Tuberculosis.—Two prisoners repatriated from Germany are described in whom fatal, rapidly progressive, pulmonary tuberculosis was associated with wide-spread tuberculous lymphadenopathy, especially cervical and mediastinal, and with changes in bone marrow, liver or spleen. Although autopsies were not obtained, biopsies during life showed wide-spread caseation of the lymph nodes and marked changes in the reticuloendothelial system suggestive of Hodgkin's disease or acute mononucleosis.—*La tuberculose réticulotrope, Forme maligne de la tuberculose ganglionnaire, P. Cazal, Presse méd., February 8, 1947, 55: 99.*—(*E. Bogen*)

BCG and Tuberculin Sensitiveness.—Three hundred and seventy-seven persons 2 to

68 years old who were all Mantoux-negative (1:10) were inoculated intracutaneously with 0.1 mg. of killed BCG. Tuberculin allergy was revealed in 104 (27.6 per cent). This allergy expressed itself in the form of an early nodule over 6 mm. in diameter in the inoculation site; occurrence of the Willis-Sayé phenomenon (early development of general allergy); and delayed tuberculin positivity. The characteristic nodular reaction is the main and most reliable guide, it being found in 100 per cent of the cases. The Willis-Sayé sign is not so consistent (69 out of 104 cases). Delayed positivity is sporadic (seen only in 13 cases). In nonallergic cases the nodule never exceeds 5 mm. in diameter and the Willis-Sayé phenomenon does not occur. This BCG allergy persisted throughout the observation period in about 75 per cent of 34 cases studied. The extinction of tuberculin sensitiveness is an unquestionable fact and the usual concept of tuberculin allergy developing as a result of a primary infection is no longer tenable. Its disappearance, however, does not necessarily mean an immediate return to a nonallergic condition. Tuberculin sensitiveness means a greater resistance to superinfection. Tuberculin allergy may be found in cases of tuberculous disease with a favorable outlook. The use of BCG in the determination of tuberculin allergy has the advantages derived from a stable antigen and lacks the disadvantages connected with the introduction of live organisms in the body. It provides also a most sensitive and accurate test.—*Contribuição ao estudo da alergia infratuberculínica, J. Rosemberg, Rev. brasil. de tuberc., September-October, 1946, 15: 327.*—(*A. A. Moll*)

Pneumothorax.—At an institution where about 3,000 pneumothorax refills are given each year, 6 cases of intrapleural hemorrhage occurred in three years; this was an incidence of 1 in 2,500. In 5 cases, there was a free pleural space without adhesions. In 3 cases, pain occurred during the refill; in all cases pain was noted later in the day. Since the needles are inserted routinely close to the lower margin of a rib, trauma to an intercostal nerve was regarded as an unlikely cause of the pain. There was no malaise. In 4 cases fever was noted within three days. Treatment consisted of immediate aspiration followed by irrigation with saline until a clear return was obtained. Subsequently, following daily fluoroscopic observation, aspiration and irrigation were done as indicated. In 4 cases only one aspiration was required. If the first aspiration was performed within forty-eight hours, the pneumothorax space was not lost. The bleeding probably comes from vessels beneath the parietal pleura. Pain on insertion of the needle should arouse suspicion of bleeding.—*Intrapleural Hemorrhage following Artificial-Pneumothorax Refills, A. K. Miller & R. J. Rinkel, Lancet, June 28, 1947, 1: 907.*—(*A.G. Cohen*)

Pleural "Mice".—For a dozen years the author has been noting sharply limited shadows in the pleural cavity during pneumothorax treatment. These sometimes seem to have rhythmical movement synchronous with the heart beat, and often seem to be attached as appendices of moderate density to the lower pole of the collapsed lung. Occasionally they are in the pleural cavity, the so-called pleural "mice;" at other times they may be confused with pleural adhesions, but always situated at the lower extremity of the lung. Many other observers have doubtless observed these same densities but have not considered them of any special importance, nor does the author think they present any special diagnostic or therapeutic problem. However he has been curious about them, and in 1939 his colleague, F. Declercq, published a short report of instances observed in the Hospital St. Pierre in Brussels (le Scalpel for July, 1939), hoping to follow it by pathological reports should there be any opportunity for postmortem study of such bodies. No such histological studies have yet been reported, and the author admits that his conclusions regarding their nature lack confirmation. According to Declercq, they are quite common and are to be found in nearly half of all films of pneumothorax in which the lower border of the lung is visible. The

author's explanation is that the diaphragmatic pleura and the parietal pleura, normally in contact in the costophrenic angle, actually contain a potential space which fills with fluid in the early stages of pneumothorax treatment. This is usually absorbed later, or if it remains it does not show any tendency to increase. One would hesitate to call it a pleural effusion, it is so trifling in amount. The withdrawal of the collapsed lung from the diaphragm may be considered a traumatic interference with the normal relations of the pleural surfaces and thus an irritation. The injected air must also be considered an irritant. At any rate, fluid accumulates in certain cases, drop by drop, in the costophrenic angle; the irritated pleura in this angular area, into which the collapsed lung is forced, exudes inflammatory serous fluid, and the fibrinous deposit becomes opaque and radioscopically visible. When the lung point, due to its retractility, eventually is drawn away, there is sometimes attached to it an appendage having the precise contour of the angle. At other times there are adhesion-like strings attached, but these are often free and move freely in the effusion if one has developed. They may have become attached to the opposite pleural wall or in other cases detached and form the so-called pleural "mice." The 8 films in which these densities have been noted leave much to be desired in their reproduction. [Densities such as those described by the author are occasionally seen in pneumothorax in the United States, and his explanation of their formation from fibrinous deposits about a nidus (possibly of blood?) on the pleural surface is probably correct. It would be difficult to confirm his theory that they usually occur first only at the lower edge of a collapsed lung in the costophrenic angle.]—*Condensations polaires inférieures observées au cours des pneumothorax thérapeutiques, J. André, Le Poumon, January-February, 1947, 3: 47.—(A. T. Laird)*

Results of Phrenicectomy.—A series of 122 patients treated for pulmonary tuberculosis by phrenicectomy between the years 1926 and 1945 is presented: 82 (67 per cent) died; 11 (9 per cent) are still under observation; 7 of the latter have been clinically cured and have been leading a normal life for more than ten years; 29 patients (24 per cent) were lost sight of. However, 10 of those had been followed up over five and up to sixteen years. The corrected statistics prove that, of 103 followed-up patients, 15 (5 per cent) were clinically cured, 6 (6 per cent) were stationary and 82 (80 per cent) had died; 29 patients died within one year after phrenicectomy. Only 4 of the deaths were not attributable to tuberculosis. In 75 cases, phrenicectomy was the only treatment; 47 patients received additional treatment: pneumoperitoneum (4), pneumothorax (16), thoracoplasty (13), thoracoplasty and pneumothorax (14). The higher the diaphragm ascended, the more unfavorable was the prognosis and the greater was the early mortality. The best results were obtained with complete immobilization and a slight to moderate elevation of the hemidiaphragm. There was no difference in the results for patients with or without cavities. Favorable results are attributed to the self-healing tendency in many cases of tuberculosis. On the basis of these experiences, the treatment of tuberculosis with phrenicectomy alone cannot be encouraged. It should not be substituted for other types of collapse therapy.—*Veinte anos de experiencia en el tratamiento de la tuberculosis pulmonar por la frenicoparalisis, F. D. Gomez, J. C. Negro & R. Burgos, Hoja tisiol., March, 1946, 6: 36.—(W. Swienty)*

Intracavitary Drainage.—Fifteen cases are reported in which Monaldi drainage was used. In 8 of them no permanent improvement was secured and the patients died after a downhill course. Three have secured a clinical cure which the passage of time has confirmed, 2 others have improved but cannot be considered completely cured, while 2 others still under treatment have a favorable prognosis. From this experience it is concluded that the method should not be used in cases where the cavities are of long standing and have stiff fibrous walls. Under such conditions, even though slight reduction in the size of large cavities

is obtained, healing of the walls and permanent contraction and disappearance of the cavity are impossible. Proximity of the cavity to pleural adhesions is unfavorable for healing. Cavities in lung tissue which contains disseminated nodular lesions surrounded by emphysema are not susceptible of adequate drainage and healing. Multiple cavities in the same lobe constitute a contraindication to the method. Laryngeal tuberculosis does not make it inadvisable. The external drainage of a cavity is usually not indicated unless the measure is supported and supplemented by collapse therapy. Used in connection with other surgical procedures, Monaldi drainage may render later surgery less extensive, and so preserve intact healthy lung tissue, especially at the base of a lobe. To avoid serious infection of the fistula formed where the drainage is introduced, the author advises, in the case of an apical cavity, preliminary resection of a portion of the first and second ribs. Cavities practically never become effaced without thoracoplasty but in certain cases thoracoplasty may be less extensive if drainage is used. Large cavities are prone to be accompanied by serious contralateral lesions requiring preliminary collapse therapy. Monaldi's method should be restricted to the relatively rare cases of recent localized cavitation with relative integrity of the other lobes. By its use some patients whom it would otherwise seem necessary to abandon to purely symptomatic treatment may be benefited.—*Quelques considérations au sujet de l'application de la méthode de Monaldi en tuberculose pulmonaire, J. Wins, Le Poumon, January-February, 1947, 3: 83.—A. T. Laird*)

Postural Treatment.—The "lying down slanting treatment" requires only a *chaise-longue* and a few blocks or bricks in the open air. No pillow is allowed and dorsal or lateral decubitus are the only positions permitted. At first the bed is horizontal but gradually the sloping position is increased by bricks under the front legs of the chair until a slight Trendelenburg position is achieved. Presence of effusion and tuberculosis of both bases are contraindications. No discomfort has been reported although a few restless patients complain of the prolonged immobilization. This treatment is usually associated with phrenicectomy, pneumothorax or gold therapy. In single upper lesions, homolateral decubitus is the rule. In a single basal lesion a phrenic operation should precede the cure. When both apices are involved dorsal decubitus is indicated. The treatment has been used for several years in many patients with unquestionable success. It has also the advantages of its low cost and applicability at home.—*La cura de declive en el tratamiento de la tuberculosis pulmonar, P. Nemirowsky, Rev. de tuberc. d. Uruguay, March, 1946, 14: 7.—(A. A. Moll)*

Streptomycin Toxicity.—In order to evaluate the chronic toxicity of streptomycin, 16 patients with active pulmonary tuberculosis were treated with highly purified streptomycin sulfate. They received 3 g. of streptomycin daily, administered at three hourly intervals for a period of at least 120 days. There was remarkably little irritation at the site of the intramuscular reaction. Two patients developed manifestations of anaphylaxis. The treatment could be resumed in both patients after an interval of several weeks. Fourteen patients developed eosinophilia at some time during the course of the treatment Cylindruria appeared in 14 patients, in 10 of them it occurred within forty-eight hours of the institution of therapy. When the urine was kept at a neutral or slightly alkaline pH cylindruria was demonstrable in only one patient. Reduction in renal function appeared in only 2 patients and in one of these the restoration of normal function occurred despite the continued administration of the drug. Symptoms of vestibular dysfunction appeared between the seventeenth and twenty-fifth days of therapy in all 16 patients. Complete symptomatic recovery occurred in all subjects. Two patients developed deafness, both had received streptomycin intrathecally for the treatment of tuberculous meningitis. Repeated intrathecal administration of not more than 0.1 g. of strep-

tomycin to patients without evidence of central nervous system disease was well tolerated. Larger amounts produced untoward reactions at times. There was no so-called histamine reaction in the entire group.—*Streptomycin Toxicity: Reactions to Highly Purified Drug on Long-continued Administration to Human Subjects, R. F. Farrington, Harriet Hull-Smith, P. A. Bunn & W. McDermott, J. A. M. A., June 21, 1947, 134: 679.*—(*H. Abeles*)

Oxygen Consumption.—Among 335 cases of various types of pulmonary tuberculosis, in 76 (22.6 per cent) respiratory difficulty was evidenced at rest, as shown by the increased oxygen consumption when this gas was introduced to replace the air in the circuit used. In 132 cases (39.4 per cent) oxygen consumption decreased under the same conditions, and in 127 (37.9 per cent) no changes occurred. Knipping has already commented on this phenomenon and explained its compensatory character in tuberculosis. Patients with a weakened neuromuscular system increase their oxygen consumption under basal conditions.—*El consumo de oxígeno en la exploración funcional del aparato respiratorio, R. Burgos, Hoja tisiol., March, 1947, 7: 49.*—(*A. A. Moll*)

Respiratory and Circulatory Responses to Oxygen.—The respiratory and circulatory responses of 81 normal individuals to the inhalation of 100 per cent oxygen and 18, 16, 14.5, 12, 10 or 8 per cent oxygen in nitrogen have been studied. An immediate decrease in pulse rate or respiratory volume occurred in 28 of 33 subjects when inhalation of 100 per cent oxygen followed room air. This suggests that some chemoreceptors of the carotid and aortic bodies are tonically active at the oxygen tension present in the arterial blood of many normal men breathing room air at sea level. An increased minute volume of respiration was noted in only a few individuals breathing 18 per cent oxygen, the majority showing no significant change until 16 per cent oxygen was inhaled. The respiratory response to anoxia was characterized by extreme individual variability and by the fact that only slight stimulation was noted until 10 or 8 per cent oxygen was inhaled. The response of the circulatory system to anoxia differed markedly from the respiratory response. Significant increase in pulse rate occurred when the concentration of oxygen in the inspired air was reduced from 20.9 to 18 per cent. Progressive increases in pulse rate accompanied further reduction in inspired oxygen concentration. Additional evidence of the respiratory stimulant action of 100 per cent oxygen was obtained. Bradycardia and a reduction of cardiac output per minute were noted simultaneously under these conditions. The wide range in arterial oxygen saturation described by others for individuals breathing the same low oxygen mixture was confirmed. (Authors' summary.)—*The Effect, of the Inhalation of High and Low Oxygen Concentrations on Respiration, Pulse Rate, Ballisto-cardiogram and Arterial Oxygen Saturation (Oximeter) of Normal Individuals, R. D. Dripps & J. H. Comroe, Jr., Am. J. Physiol., May, 1947, 149: 277.*—(*G. C. Leiner*)

Carbon-dioxide Inhalation.—The average volume of respiration of 42 subjects inhaling 7.6 per cent carbon dioxide in oxygen was 51.5 liters per minute. The average minute volume of respiration of 31 subjects inhaling 10.4 per cent carbon dioxide in oxygen was 76.3 liters. Pulse rate and blood pressure rose under carbon-dioxide inhalation. In 19 subjects the average maximal ventilation produced by inhalation of 7.6 per cent carbon dioxide was 48.9 liters per minute; by inhalation of 10.4 per cent, 71.4 liters per minute; by muscular exercise, 109.6 liters per minute; by voluntary hyperventilation (maximal breathing capacity), 166 liters per minute. The most frequent symptoms produced by inhalation of carbon dioxide were headache, dizziness and dyspnea.—*The Respiratory and Circulatory Response of Normal Man to Inhalation of 7.6 and 10.4 Per Cent CO_2 with a Comparison of the Maximal Ventilation Produced by Severe Muscular Exercise, Inhalation of CO_2 and Maximal Voluntary Hyperventilation, R. D.*

Dripps & J. H. Comroe, Jr., Am. J. Physiol., April, 1947, 149: 43.—(G. C. Leiner)

Respiration and Vagal Stimulation.—Under urethane anesthesia low frequency central vagal stimulation in dogs caused respiratory acceleration. High frequency stimulation continuously or during expiration slowed the breathing by prolonging the expiratory phase, unless the duration of the stimulus was limited so that only a small number of shocks was applied, when respiratory acceleration occurred. Acceleration was also caused by high frequency afferent vagal stimulation during inspiration, that is, by intermittent inspiratory inhibition analogous to the lung-stretch reflexes. Under barbiturate anesthesia respiratory acceleration with low frequencies of vagal stimulation usually failed to occur, and these stimuli usually inhibited the breathing. Vagal stimulation during the inspiratory phase alone did cause respiratory acceleration in most instances even under barbitone. In explanation of the results, a theory was presented in which it was suggested that each afferent vagal impulse serves as a unitary contributor to the development of a central state affecting the respiratory centre or its connections. Under urethane a low frequency stimulus or a limited number of impulses at high frequency was considered to result only in a slight build-up of this central state. A rapid and sufficiently prolonged stimulus was considered to result in development of the central state to a greater degree. Comparisons were made with the actions of various drugs in weak and strong concentrations. It was suggested that when the central state was of slight extent or degree, its effect on the respiratory centre was augmentor; when of greater extent or degree, its effect was inhibitor. With barbitone the failure of respiratory acceleration to occur with low frequency stimuli was attributed to the effect of this drug in accentuating the development of an inhibitory level of the central state. The results of the experiments reported upon were interpreted to indicate that whether acceleration or inhibition resulted from different forms of vagal stimulation the type of response was due to a central selective action to impulses conveyed in a single type of afferent path, rather than to stimulation of specific augmentor and inhibitor types of fibres in the vagi. (Authors' summary.)—*Modification of Respiratory Movements by Vagal Stimulation, H. V. Rice & Margaret S. Joy, Am. J. Physiol., April, 1947, 149: 24.—(G. C. Leiner)*

Breath-Holding Test.—Breath-holding tests were done in 48 aviation students. The conclusion drawn from these experiments is that breath-holding tests cannot be used for prediction of endurance.—*Breath Holding as a Test of Physical Endurance, P. V. Karpovich, Am. J. Physiol., June, 1947, 149: 720.—(G. C. Leiner)*

Immunization against Pneumonia.—The results of immunization against pneumonia for a period of six years with a polyvalent type I and II and, later, type I, II and III pneumococcus polysaccharide are reported; 5,750 persons were immunized and 5,153 kept as controls. During the total period of observation, the number of cases of pneumonia among immunized persons was 99, making the incidence rate 17.2 per thousand. Two hundred and twenty-seven cases of pneumonia occurred within the same period in the control group, which equals an incidence rate of 44 per thousand. The number of deaths due to pneumonia in the immunized group was 40, with a mortality rate of 6.2 per thousand as compared with 98 deaths due to pneumonia (making a death rate of 19.0 per thousand) among the controls. The antigenicity of polysaccharides was tested in mice separately against dilutions of types I, II and III pneumococcus cultures. Protection was found against an average of five hundred thousand lethal doses in 50 per cent of the animals. The blood sera of 400 persons of the immunized group showed an average of a 1,000-fold increase in their protective body titer against type I and a 344-fold increase against type II pneumococcus cultures. The clinical and pathological picture of pneumonia in the two groups (immunized and controls) was generally the same. There were, however,

relatively more bacteremias, toxemias, effusions, empyemata and cases of unresolved and relapsing pneumonia in the controls than in the immunized group. Similarly, there was a difference in the distribution of types in the two groups; more cases of types I, II and III occurred among the controls than among the immunized persons, while the incidence of the higher types was increased in the immunized group as compared with that in the controls. Active immunization in epidemics of pneumonia, in persons in institutions, in elderly persons and in those who have a tendency to recurring pneumonia is suggested. (Author's summary.)—*Pneumonia in Old Age: Active Immunization against Pneumonia with Pneumococcus Polysaccharide; Results of a Six Year Study, P. Kaufman, with the technical assistance of B. Kaefely, S. K. Kling, C. O'Brien & H. Steine, Arch. Int. Med., May, 1947, 79: 518.*—(*G. C. Leiner*)

Q-Fever.—During the period from February, 1946 through May, 1946, there was an explosive outbreak of Q-fever among the workers in one building of the National Institute of Health. There was a total of 47 cases; data in this paper are based upon 45 of these. American Q-fever is caused by *Rickettsia diaporica* which is immunologically identical with *Rickettsia burneti* isolated in the Australian variety. Diagnosis was based on two criteria: (*1*) a rise in titer for Q-fever in the complement fixation test during the convalescent phase of the illness; (*2*) when no sera were obtained during the acute stage, a strongly positive complement fixation reaction during the convalescent stage was considered as diagnostic. Usually, sera were negative until ten to fourteen days after onset of illness. There was no correlation between severity of illness and complement fixation titer. *Rickettsia burneti* were isolated from the blood of 5 cases and from the sputum of one. The incubation period ranged from twelve to twenty-three days. Definite prodromal symptoms, lasting one day, were characteristic; headache, malaise and generalized aching were most common. The severity of the disease varied greatly; several patients with mild symptoms were able to continue working. There was clinical or roentgen evidence of pneumonitis in 13 patients. Cough occurred in all 13. Five had frankly bloody sputum. Physical signs of pneumonitis were easily detectable in most patients with lung involvement. White blood and differential counts were usually normal. Sedimentation rate was moderately increased. In the pneumonitis cases, chest X-ray films showed either consolidation, as in lobar pneumonia, or findings usually seen in a typical pneumonia of unknown etiology. Convalescence in some cases was prolonged up to three months. Penicillin, sulfadiazine and immune serum exerted no apparent effect on the course of the illness. The authors stress the fact that Q-fever can occur without pneumonitis; lung involvement was present in only 13 of 45 cases in this series.—*Report of an Outbreak of Q-Fever at the National Institute of Health: I. Clinical Features, C. G. Spicknall, R. J. Huebner, J. A. Finger & W. P. Blocker, Ann. Int. Med., July, 1947, 27: 28.*—(*H. R. Nayer*)

Unusual Pulmonary Disease.—Twenty-six cases of an unusual pulmonary disease occurred at Camp Gruber, Oklahoma, in March, 1944. Every man who became ill had spent some time in an abandoned storm cellar, and none became ill who had not been in the cellar. The onset of the disease was sudden with malaise, fatigue, muscular aching, chill, fever, sweating, constricting pain in the thorax and epistaxis. Clinical signs were scarce. *Monilia albicans* may have been the cause of the disease. The other laboratory findings were of no significance. Chest roentgenograms showed disseminated small areas of infiltration throughout both lungs and enlargement of the hilar lymph nodes. Recovery was slow and incomplete. In February, 1943, 5 patients had been admitted with identical symptoms and signs.—*An Unusual Pulmonary Disease, J. C. Cain, E. J. Devins & J. E. Downing, Arch. Int. Med., June, 1947, 79: 626.*—(*G. C. Leiner*)

Eruptive Fever.—Twenty cases are reported of a syndrome described in the literature under

the following names: eruptive fever with stomatitis and ophthalmia, *erythema exudativum multiforme* of Hebra, *erythema* or *herpes iris conjunctivae*, *ectodermosis erosiva pluriorificialis* and Stevens-Johnson syndrome. Prodromal symptoms in the respiratory tract are followed by lesions of the skin and mucous membrane of the mucocutaneous junctions, characterized by vesicles and pseudomembranes and accompanied frequently with fever and occasionally with bronchopneumonia. Complete recovery is usual except for rare ocular complications. Ninety per cent of the cases occurred between January and June. The age of the patients was between 18 and 31 years. In 19 cases the onset was with respiratory symptoms. Conjunctivitis developed in 14 cases. All patients had oral involvement. Genital involvement was seen in 13 patients. Bacteriological examination of the various exudates and secretions gave no significant findings. It is probably an air-borne disease due to a virus.—*Eruptive Fever with Involvement of the Respiratory Tract, Conjunctivitis, Stomatitis and Balanitis: An Acute Clinical Entity, Probably of Infectious Origin; Report of Twenty Cases and Review of Literature, S. N. Soll, Arch. Int. Med., May, 1947, 79: 475.*—(*G. C. Leiner*)

Pulmonary Changes in Glomerulonephritis.—It is claimed that it is possible to establish the diagnosis of glomerulonephritis from the X-ray appearance of the lung only. The distinct features are a dilation of the heart with ingurgitation of the vena azygos which can be seen as a right paratracheal shadow the shape of which may be different in every case but is sufficiently typical to establish the diagnosis. There are two forms of pulmonary congestion of the uremic type: one predominantly passive, hypertensive, chronic, with perivascular and interstitial reaction; the other active, subacute, hypertensive, with interstitial and interalveolar reaction and edematous transudation. The retention of nitrogen plays an important rôle in the production of these changes. However, as there are cases with high nitrogen retention which do not represent the typical lung picture, there must be other contributing factors. These may be either a toxemic substance which acts upon the endothelial lining of the vessels or an agent which acts on the central vasomotor control directly. The hypertension caused by glomerulonephritis aggravated by anuria or oliguria reacts on the unprepared myocardium and so causes cardiovascular insufficiency. This has been substantiated by electrocardiographic studies. On the other hand, inflammatory nephropathies and chronic sclerosis of the kidney with arterial hypertension and high uremia do not produce any changes in the pulmonary fields. It seems that the circulatory factor plays the foremost rôle in the production of the "azotemic lung." Nitrogen retention itself plays only a secondary rôle by action on the permeability of the membranes or on the vasomotor centre. For this reason, the term "azotemic lung" should be changed to "cardiac lung." Eight case histories are given.—*Aspectos radiologicos del torax en la glomerulo nefritis aguda: Contribucion al estudio del llamado "pulmon azotemico," J. Alvayay C. & E. Zarate, Rev. méd. de Chile, March, 1947, 75: 162.*—(*W. Swienty*)

Pulmonary Cysts.—Air-filled cysts in the lungs are more common than usually suspected. The writers operated on 6 cases between November, 1943 and September, 1946, and declined to operate on 10 others because of contraindications. Three of the 6 patients were women, one of these a child six years old. These cysts may be congenital or acquired, but it is often difficult to determine their nature. Simple pneumatoceles often disappear spontaneously and as a rule do not require surgery. In diagnosis, simple roentgenograms are the most reliable aid. Visualization of walls and rounded outline helps to differentiate them from tension pneumothorax and empyema. Bronchography is also of assistance and bronchoscopy has both diagnostic and therapeutic value. Thoracoscopy has but limited value and entails some risk. Thoracocentesis and pneumothorax have no place in diagnosis. Surgical indications include severe repeated

hemorrhages, continued purulent sputum, repeated hypertensive pneumothorax with or without empyema and progressive respiratory difficulty. In treatment, drainage with lobectomy, pneumonectomy or segmentary removal of the lung are the measures of choice. Previous determination of the functional capacity of both lungs is most important, as a more extensive, often contralateral, operation than anticipated may be required. In the 6 cases now reported 2 lobectomies, 2 pneumonectomies, one drainage with secondary lobar excision and one removal of a cyst with lobectomy were performed. No postoperative deaths or complications developed. In the 2 pneumonectomy cases, both circulation and respiration improved definitely.—*Tratamiento quirúrgico de los quistes aéreos del pulmón, O. J. Cames, A. Cesanelli & F. E. Tricerri, An. de cir. (Argentina), March, 1947, 12: 35.*—(*A. A. Moll*)

Postural Therapy in Emphysema.—Patients with respiratory difficulty, either from heart or pulmonary origin, assume, of their own accord, a sitting position for relief. During some research work on abdominal pressure, it was ascertained that patients with marked pulmonary emphysema benefit when placed in a horizontal position, and even in a modified Trendelenburg position. Twenty patients with considerable emphysema complicating either asthma, bronchitis or tuberculosis of the lung were placed in dorsal decubitus with an 8 to 10 degree Trendelenburg inclination. In some cases this was continuous; in others at intervals; in a few, only at night. In 11, improvement of the condition was immediate; 6 adopted voluntarily the new position for sleeping purposes and 2 even increased the inclination of the bed. Spirometric determinations in 10 patients showed that in a slanting position, as compared to a sitting position, reserve air decreases appreciably. On the other hand, there is but little change in the vital capacity, tidal air, respiratory volume per minute and ventilation equivalent. This treatment must be considered as purely palliative and in the same category as the use of abdominal belts and pneumoperitoneum.—*Acción de la declivoterapia en algunos enfisematosos disneicos, R. Rimini, J. Duomarco & L. P. Arboleda, Rev. de tuberc. d. Uruguay, December, 1946, 14: 231.*—(*A. A. Moll*)

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